



A.D. 1861, 26th August. N° 2123.

S P E C I F I C A T I O N

OF

GEORGE NYE.

APPARATUS FOR ADMINISTERING
INJECTIONS.

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A.D. 1861, 26th AUGUST. N° 2123.

Apparatus for Administering Injections.

LETTERS PATENT to George Nye, of No. 18, Mount Street, Lambeth, in the County of Surrey, Surgical Instrument Maker, for the Invention of "IMPROVEMENTS IN APPARATUS FOR ADMINISTERING INJECTION IN A CONTINUOUS STREAM, ALSO APPLICABLE AS AN EYE DOUCHE AND OTHER PURPOSES."

Sealed the 21st February 1862, and dated the 26th August 1861.

PROVISIONAL SPECIFICATION left by the said George Nye at the Office of the Commissioners of Patents, with his Petition, on the 26th August 1861.

I, GEORGE NYE, of No. 18, Mount Street, Lambeth, in the County of Surrey,
5 Surgical Instrument Maker, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN APPARATUS FOR ADMINISTERING INJECTION IN A CONTINUOUS STREAM, ALSO APPLICABLE AS AN EYE DOUCHE AND OTHER PURPOSES," to be as follows:—

This Invention has for its object the obtaining a continuous stream of water
10 or other fluid and consists of a metallic reservoir of convenient size to contain the fluid to be used, and is furnished with an injection tube and stop-cock, which tube turns upon a joint for the purpose of regulating its position and convenience for use; upon the top of the reservoir is affixed a vulcanized india-rubber bottle or ball fitted with air valves. By compressing the bottle
15 or ball air is forced into the reservoir and the fluid is thereby projected in a

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continuous stream. By another arrangement I produce the same effect. This consists of a metallic air vessel enclosing the induction pipe to which is attached a valve, and at the bottom of the air vessel is a foot also containing a valve; at the top of the air vessel is affixed a vulcanized india-rubber bottle or ball, by the alternate compression and expansion of which the water or other fluid 5 is forced into the air vessel and thence through the induction pipe in a continuous stream.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said George Nye in the Great Seal Patent Office on the 26th February 1862.

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TO ALL TO WHOM THESE PRESENTS SHALL COME, I, GEORGE NYE, of No. 18, Mount Street, Lambeth, in the County of Surrey, Surgical Instrument Maker, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-sixth day of August, in the year of our Lord 15 One thousand eight hundred and sixty-one, in the twenty-fifth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said George Nye, Her special licence that I, the said George Nye, my executors, administrators, and assigns, or such others as I, the said George Nye, my executors, administrators, and assigns, should at any time agree 20 with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “**IMPROVEMENTS IN APPARATUS FOR ADMINISTERING INJECTION IN A CONTINUOUS STREAM, ALSO APPLICABLE AS AN EYE 25 DOUCHE AND OTHER PURPOSES,**” upon the condition (amongst others) that I, the said George Nye, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be 30 filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said George Nye, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following 35

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statement thereof, reference being had to the accompanying Drawings, and to the letters and figures marked thereon, that is to say :—

The object of this Invention is the construction of apparatus for administering injections in a continuous stream, applicable also to eye douche
5 apparatus and for other like purposes.

My Invention relates to two arrangements of apparatus. The first of these arrangements consists of an apparatus in which a vulcanized india-rubber vessel fitted with air valves is affixed at the top of a reservoir intended to contain the water or other fluid to be used, so that by compressing the said india-rubber
10 vessel air is forced into the reservoir and the water or fluid thereby projected from it in a continuous stream. The reservoir may sometimes be furnished with an injection tube fitted with stop-cock and working on a joint.

In my second arrangement of apparatus a metallic air vessel is employed enclosing an induction pipe in which is a chamber fitted with a valve for opening
15 and closing the eduction way ; at the bottom of the air vessel is secured a foot also fitted with a valve, and at the top of the air vessel is affixed a vulcanized india-rubber vessel, by the alternate compression and expansion (or recoil) of which, water or other fluid is forced into the air vessel and thence projected through the outlet pipe in a continuous stream. The valve that opens and
20 closes the eduction way, is so arranged that it may be readily attained, removed, and replaced.

The accompanying Drawings represent apparatus constructed according to my Invention.

Figure 1 is a side elevation, and Figure 2 a vertical section of an injection
25 apparatus constructed according to my first arrangement.

A is the “reservoir” which contains the water or other liquid to be injected which is admitted through an opening B, kept tightly closed by a screw cap or stopper C, while the operation of injection is proceeding ; D is the injection pipe leading from the reservoir A, and E its stop-cock, the pipe turns on a
30 joint at F to adjust or accommodate it to the patient's convenience, as is usual ; G is a bottle, ball, or vessel of vulcanized india-rubber secured to the top of the reservoir A by the metal screw mount *a* ; *b*, *c*, are air valves, of which *b* is fitted at the upper, and *c* at the lower end of the vessel G ; the valve *b* shewn apart in Figure 3 is made in two parts *d* and *h* screwing together ; *d* is a
35 hollow screw open at bottom and closed at top by a head *e* which is recessed on its periphery to form a groove in which are small perforations *g* for the entry of air which passes through them into the shank *d* and through the passage in *h* and perforations in a shield *k* into the vessel G. The best mode

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of fitting these valves in place (but which mode may be varied) is thus :—I form an opening at the top of the vessel G, and another opening opposite it at the bottom, and the shank *d* is fitted at the top opening, and the part *h* (having an oil silk diaphragm *i* at bottom) is inserted through the lower opening and brought up to the top opening and screwed on to the part *d*. The lower valve *c*, is 5 screwed into the mount *a* which is screwed on the reservoir A; *k* is a metal cap or shield for protecting the valve *b* from injury or displacement when the vessel is compressed. When the vessel G is in its normal or non-compressed state, the air enters into it through the valve *b*, and on compressing the vessel G the air is forced from it through the valve *c* and into the reservoir A through an 10 orifice *j* formed in the top of the reservoir opposite the opening of the valve *c*.

Thus on compressing the vessel G and allowing it to expand (or return) to its original form alternately the fluid will be forced from the reservoir A in a continuous stream through the injection pipe D supposing the stop-cock E open. The form of the valves *b*, *c*, may be varied, but I prefer those shewn. 15

Figure 4 is an elevation shewing the same or first arrangement adapted as an eye douche. A is a glass reservoir, closed at top by a metal cover H. The parts G, *b*, *c*, *a*, are respectively similar to those indicated by like letters in Figures 1, 2, and 3; I is a rigid pipe, preferably of metal, through which the liquid is forced from the reservoir into the patient's eye. This pipe opens at 20 one end into the reservoir A to which it is secured, and at the other end it terminates in a rose spreader, or other convenient mouth within a glass or other cup J, to which cup the eye is applied; K is a waste pipe, leading from the cup J. The combination of a cup J with a pipe is well known as applied to an eye douche, but heretofore the pipe has been flexible, and the patient 25 has had to hold the cup and pipe to his eye with one hand while pumping into the pipe with the other, whereas in my arrangement the pipe being rigid and a fixture to the fluid reservoir presents itself in the required position, and the patient can place his eye against the cup, and is relieved from the trouble and annoyance of holding the pipe. This arrangement may be applied as an 30 ear douche. In this my first arrangement of apparatus the india-rubber vessel being fitted, as shewn, the air valves are out of reach of the liquid and protected from injury therefrom.

Figure 5 is an elevation, and Figure 6 a vertical section of an injection apparatus, constructed according to my second arrangement. L is a metal air 35 vessel; M is a bottle, ball, or vessel of vulcanized india-rubber secured by a metal mount *m* to the vessel L; N is the induction pipe, fixed in the chamber or vessel L; it communicates at one end with the interior of the vessel M,

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and at the other with the passage through the foot O. O is a foot, screwed to the vessel L; it is formed tubular, or has a passage *o* through it open at bottom and communicating at top with the pipe N; P is a ball valve in the passage *o*; R is a ball valve for opening and closing
5 the eduction way. This valve, which, with its seat, is shewn apart in Figure 7, is fitted in a chamber Q, fixed within the pipe N, and the valve rests on a seat S screwed to the chamber Q, and having a passage *s* through it, which constitutes the thoroughfare between the valve chamber Q and the passage *o*, when the valve R is raised, the valve chamber Q being
10 open at bottom. T is a pipe, fixed transversely to the chamber Q, in which it opens at one end, and passing through the side of the chamber Q, and of the pipe N opens at its other end in the chamber L; U is the outlet pipe, for conveying the fluid from the chamber L into the person of the user or elsewhere, as required. When the apparatus is to be used the bottom of the foot O
15 is inserted into the fluid to be injected; and the ball or vessel M having been first compressed, and then allowed to expand back again, a vacuum will be produced in the pipe N, through which pipe the fluid will rise into the vessel M, and on again compressing the latter the fluid will be forced back through the pipe N, lift the valve R, and pass through the chamber Q, and pipe T into
20 the vessel L, and thence through and out of the pipe U. By repeating the compression and releasing of the vessel M, the vessel L will be alternately filled with and emptied of liquid, which will be discharged through U in a continuous stream.

Apparatus working according to this method of action have already been
25 constructed and known, but in such apparatus the valve that opened and closed the eduction way has been so fixed that it could not be reached and removed without taking the whole apparatus to pieces, whereas in my apparatus the valve R can easily be attained, removed, and replaced by unscrewing and detaching the foot O, whereby the valve seat S will be exposed, and can
30 easily be attained and unscrewed to allow the valve R to be removed, and the apparatus to be purified.

Having now described the nature of my said Invention and in what manner the same may be performed, I declare that what I claim is as follows:—

First, in respect of my first arrangement of apparatus I claim the employ-
35 ment of an india-rubber compressible vessel, fitted with air valves in combination with a reservoir or holder for liquid, as herein-before described, so that by means of such india-rubber vessel the liquid may be discharged in a continuous stream.

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Second, I claim the application to eye and ear douche apparatus of a rigid discharge pipe fixed to a reservoir or holder of liquid, as herein-before described, whereby the necessity of holding a pipe to the part affected is dispensed with.

Third, in respect of my second arrangement of apparatus, I claim the arranging of the valve that opens and closes the eduction way, so that it may be readily removed and replaced, as herein-before described.

In witness whereof, I, the said George Nye, have hereunto set my hand and seal, this Twenty-fifth day of February, in the year of our Lord One thousand eight hundred and sixty-two.

GEORGE NYE. (L.S.) 10

Witness,

M. HENRY,

Patent Agent,

84, Fleet Street, London.

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